AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-35 (Cancelled)

36. (Previously Presented) A method of producing a molding die for molding an optical element, comprising the steps of:

molding a base material consisting of an amorphous alloy having a super-cooled liquid phase by softening the base material with heat and by pressing the softened base material to form a die base body;

processing a surface of the die base body to form a reference surface on the die base body;

attaching the die base body onto a processing machine on the basis of the reference surface; and

shaving a part of the die base body through the use of the processing machine to form a die face corresponding to an optical surface of the optical element.

37. (Previously Presented) The producing method of claim 36, wherein the shaving step is a cutting step.

38. (Previously Presented) The method of claim 37, wherein the cutting step is performed by the processing machine and wherein the processing machine comprises a diamond cutting tool.

39. (Previously Presented) The method of claim 36, wherein the die face formed in the shaving step has a plurality of protrusions or a plurality of hollows to form a plurality of hollows or a plurality of protrusions on the optical surface of the optical element.

40. (Previously Presented) The method of claim 39, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element form a fine structure having a substantially equivalent refractive index region.

41. (Previously Presented) The method of claim 39, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element form a fine structure to create a reflection-preventing effect.

42. (Previously Presented) The method of claim 39, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element form a fine structure to generate a structural double refraction.

43. (Previously Presented) The method of claim 39, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element form a fine structure having a resonance region.

44. (Previously Presented) The method of claim 39, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element have a function to adjust a change in aberration due to a wavelength change of a light source to emit a light flux to the optical element.

45. (Previously Presented) The method of claim 39, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element have a function to adjust a change in aberration due to a temperature change.

46. (Previously Presented) The method of claim 39, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element form one or more ring-shaped diffractive zones.

47. (Previously Presented) The method of claim 36, wherein the amorphous alloy has a hardness Hv of 300 or more at room temperature.

48. (Previously Presented) The method of claim 36, wherein the amorphous alloy has a hardness Hv of 700 or less at room temperature.

49. (Previously Presented) The method of claim 36, wherein the composition of the amorphous alloy comprises palladium.

50. (Previously Presented) The method of claim 49, wherein the composition of the amorphous alloy comprises palladium with a rate of 30 mol% to 50 mol%.

51. (Previously Presented) The method of claim 36, wherein the composition of the amorphous alloy comprises at least one element selected from copper, nickel, phosphor, zirconium, or aluminum, with a rate of 3 mol% or more.

52. (New) A molding die for molding an optical element, comprising:

a die base body formed by molding a base material consisting of an amorphous alloy having a super-cooled liquid phase by softening the base material with heat and by pressing the softened base material;

a reference surface on the die base body formed by processing a surface of the die base body; and

a die face corresponding to an optical surface of the optical element formed by shaving a part of the die base body through the use of a processing machine,

wherein the processing machine is attached to the die base body on the basis of the reference surface.

53. (New) The molding die of claim 52, wherein the shaving step is a cutting step.

54. (New) The molding die of claim 53, wherein the cutting step is performed by the processing machine and wherein the processing machine comprises a diamond cutting tool.

55. (New) The molding die of claim 52, wherein the die face formed in the shaving step has a plurality of protrusions or a plurality of hollows to form a plurality of hollows or a plurality of protrusions on the optical surface of the optical element.

56. (New) The molding die of claim 55, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element form a fine structure having a substantially equivalent refractive index region.

57. (New) The molding die of claim 55, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element form a fine structure to create a reflection-preventing effect.

58. (New) The molding die of claim 55, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element form a fine structure to generate a structural double refraction.

59. (New) The molding die of claim 55, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element form a fine structure having a resonance region.

60. (New) The molding die of claim 55, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element have a function to adjust a change in aberration due to a wavelength change of a light source to emit a light flux to the optical element.

61. (New) The molding die of claim 55, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element have a function to adjust a change in aberration due to a temperature change.

62. (New) The molding die of claim 55, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element form one or more ring-shaped diffractive zones.

63. (New) The molding die of claim 52, wherein the amorphous alloy has a hardness Hv of 300 or more at room temperature.

64. (New) The molding die of claim 52, wherein the amorphous alloy has a hardness Hv of 700 or less at room temperature.

65. (New) The molding die of claim 52, wherein the composition of the amorphous alloy comprises palladium.

66. (New) The molding die of claim 65, wherein the composition of the amorphous alloy comprises palladium with a rate of 30 mol% to 50 mol%.

67. (New) The molding die of claim 52, wherein the composition of the amorphous alloy comprises at least one element selected from copper, nickel, phosphor, zirconium, or aluminum, with a rate of 3 mol% or more.